City of Bath Landfill
Sagadahoc County
Bath, Maine
A-980-71-C-R

Departmental
Findings of Fact and Order
Air Emission License
Renewal

FINDINGS OF FACT

After review of the air emissions license renewal application, staff investigation reports and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 M.R.S.A., §344 and §590, the Maine Department of Environmental Protection (Department) finds the following facts:

I. REGISTRATION

A. Introduction

City of Bath Landfill (BLF) has applied to renew their Air Emission License permitting the operation of emission sources associated with their landfill.

The equipment addressed in this license is located at Thorn Head, Bath, Maine.

B. Emission Equipment

The following equipment is addressed in this air emission license:

Emission Equipment

Equipment	Unit Capacity
Solid Waste Landfill	0.8 million Megagrams
Flare	12.0 MMBtu/hr

C. Application Classification

The application for BLF does not include the licensing of increased emissions or the installation of new or modified equipment. Therefore, the license is considered to be a renewal of currently licensed emission units only and has been

processed through *Major and Minor Source Air Emission License Regulations*, 06-096 CMR 115 (as amended).

II. BEST PRACTICAL TREATMENT (BPT)

A. Introduction

In order to receive a license, the applicant must control emissions from each unit to a level considered by the Department to represent Best Practical Treatment (BPT), as defined in *Definitions Regulation*, 06-096 CMR 100 (as amended). Separate control requirement categories exist for new and existing equipment as well as for those sources located in designated non-attainment areas.

BPT for existing emissions equipment means that method which controls or reduces emissions to the lowest possible level considering:

- the existing state of technology;
- the effectiveness of available alternatives for reducing emissions from the source being considered; and
- the economic feasibility for the type of establishment involved.

B. Solid Waste Landfill and Flare

BLF operates and maintains a municipal solid waste landfill with a maximum permitted design capacity of 0.8 million megagrams. BLF is therefore not subject to New Source Performance Standards (NSPS) Subpart WWW – Standards of Performance for Municipal Solid Waste Landfills which applies to landfills greater than 2.5 million megagrams.

In January 2008, the City of Bath began operating an active gas collection and control system (GCCS) to control odors and to reduce greenhouse gas emissions. The active GCCS installed at the Bath Landfill consists of gas extraction wells and horizontal gas collection trenches that are connected by a system of gas conveyance lines to a vacuum blower and flare.

The active GCCS provides capture efficiency of approximately 75% to 95% and destroys approximately 98% of the collected Non-Methane Organic Compounds (NMOC), Volatile Organic Compounds (VOC), Hazardous Air Pollutants (HAP) and methane.

The GCCS reduces greenhouse gas emission by converting methane to carbon dioxide. The estimated global warming potential of methane is 21 times greater than carbon dioxide (CO_2). Landfill gases typically consist of approximately 50 percent methane.

Nitrogen oxides (NOx), carbon monoxide (CO) and particulate matter (PM) are emitted from the flare after combustion of landfill gases. The flare was previously determined by the Department to be BACT for these compounds and meets industry standards for controlling landfill gas emissions. We are not aware of any pre- or post- landfill gas combustion flare controls that are practical for use in controlling emissions of VOCs, NO_x, PM , CO or CO_2.

Sulfur dioxide (SO_2) is also emitted from the flare as a result of combustion of sulfur-containing compounds such as total reduced sulfur compounds (TRS) primarily hydrogen sulfide (H_2S). The previous BACT for SO_2 analysis indicated controls were not required for SO_2 due, in part, to the high cost of SO_2 removal. Based on periodic sampling the concentration of TRS in landfill gas at the Bath Landfill has decreased from approximately 1000 ppm in 2008 to approximately 125 ppm in 2012. The decrease in the TRS concentration would result in the cost of SO_2 removal to be even greater.

The Department has determined the operation of BLF's GCCS is BPT for control of air pollutants.

BPT Findings

The BPT emission limits for the landfill and flare were based on the following operational parameters:

Maximum flow rate to biogas flare	400	scfm
Estimated collection efficiency	75	%
Estimated flare destruction efficiency	98	%
Estimated Maximum Fugitive LFG Flow Rate	133	scfm
Approximate Methane Concentration	50	% by volume
Heat input to the flare	12	MMBtu/hr
Approximate Heat input to the flare	105,120	MMBtu/yr

The BPT emission limits for the landfill and flare were based on the following:

PM/PM_{10} – 0.2 lb/hr based on an emission factor of 17 lb/10^6scf CH_4, AP-42 Table 2.4-5;
SO_2 – 3.92 lb/hr based on a highest tested TRS concentration of 1000ppm converted to SO_2
NO_X – 0.068 lb/MMBtu, AP-42 Table 13.5-1
CO – 0.37 lb/MMBtu, AP-42 Table 13.5-1
VOC – 0.025 lb/hr from the flare and 0.432 lb/hour from fugitive emissions based on operational parameters listed above.

The BPT emission limits for the landfill and flare emissions are the following:

Unit	PM (lb/hr)	PM_{10} (lb/hr)	SO_2 (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Landfill and flare emissions	0.20	0.20	3.92	0.82	4.44	0.46

Visible emissions from the landfill flare shall not exceed 10% opacity on a 6 minute block average. [06-096 CMR 115, BPT]

C. General Process Emissions

Visible emissions from any general process source (including stockpiles and roadways) shall not exceed an opacity of 20% on a six (6) minute block average basis, except for no more than one (1) six (6) minute block average in a 1-hour period.

D. Annual Emissions

1. Total Annual Emissions
BLF shall be restricted to the following annual emissions, based on a 12 month rolling total:

Total Licensed Annual Emissions for the Facility
Tons/year
(used to calculate the annual license fee)

	PM	**PM_{10}**	**SO_2**	**NO_x**	**CO**	**VOC**
Flare	0.9	0.9	17.2	3.6	19.4	0.11
Facility wide limit	--	--	--	--	--	1.89
Total TPY	**0.9**	**0.9**	**17.2**	**3.6**	**19.4**	**2.0**

2. Hazardous Air Pollutants
BLF is limited to 1 ton per year of total Hazardous Air Pollutant emissions.

3. Greenhouse Gases
Greenhouse gases are considered regulated pollutants as of January 2, 2011, through 'Tailoring' revisions made to EPA's *Approval and Promulgation of Implementation Plans,* 40 CFR Part 52, Subpart A, §52.21 Prevention of

Significant Deterioration of Air Quality rule. Greenhouse gases, as defined in 06-096 CMR 100 (as amended), are the aggregate group of the following gases: Carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. For licensing purposes, greenhouse gases (GHG) are calculated and reported as carbon dioxide equivalents (CO_2e).

Based on the facility's fuel use limit, the worst case emission factors from AP-42, IPCC (Intergovernmental Panel on Climate Change), and *Mandatory Greenhouse Gas Reporting*, 40 CFR Part 98, and the global warming potentials contained in 40 CFR Part 98, BLF is below the major source threshold of 100,000 tons of CO_2e per year. Therefore, no additional licensing requirements are needed to address GHG emissions at this time.

III. AMBIENT AIR QUALITY ANALYSIS

The level of ambient air quality impact modeling required for a minor source shall be determined by the Department on a case-by case basis. In accordance with 06-096 CMR 115, an ambient air quality impact analysis is not required for a minor source if the total emissions of any pollutant released do not exceed the following levels and there are no extenuating circumstances:

Pollutant	Tons/Year
PM_{10}	25
SO_2	50
NO_x	50
CO	250

The total facility licensed emissions are below the emission levels contained in the table above and there are no extenuating circumstances; therefore, an ambient air quality impact analysis is not required as part of this license.

ORDER

Based on the above Findings and subject to conditions listed below, the Department concludes that the emissions from this source:

- will receive Best Practical Treatment,
- will not violate applicable emission standards, and
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants Air Emission License A-980-71-C-R subject the following conditions:

Severability. The invalidity or unenforceability of any provision, or part thereof, of this License shall not affect the remainder of the provision or any other provisions. This License shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

STANDARD CONDITIONS

(1) Employees and authorized representatives of the Department shall be allowed access to the licensee's premises during business hours, or any time during which any emissions units are in operation, and at such other times as the Department deems necessary for the purpose of performing tests, collecting samples, conducting inspections, or examining and copying records relating to emissions (38 M.R.S.A. §347-C).

(2) The licensee shall acquire a new or amended air emission license prior to commencing construction of a modification, unless specifically provided for in Chapter 115. [06-096 CMR 115]

(3) Approval to construct shall become invalid if the source has not commenced construction within eighteen (18) months after receipt of such approval or if construction is discontinued for a period of eighteen (18) months or more. The Department may extend this time period upon a satisfactory showing that an extension is justified, but may condition such extension upon a review of either the control technology analysis or the ambient air quality standards analysis, or both. [06-096 CMR 115]

(4) The licensee shall establish and maintain a continuing program of best management practices for suppression of fugitive particulate matter during any period of construction, reconstruction, or operation which may result in fugitive dust, and shall submit a description of the program to the Department upon request. [06-096 CMR 115]

(5) The licensee shall pay the annual air emission license fee to the Department, calculated pursuant to Title 38 M.R.S.A. §353-A. [06-096 CMR 115]

(6) The license does not convey any property rights of any sort, or any exclusive privilege. [06-096 CMR 115]

(7) The licensee shall maintain and operate all emission units and air pollution systems required by the air emission license in a manner consistent with good air pollution control practice for minimizing emissions. [06-096 CMR 115]

(8) The licensee shall maintain sufficient records to accurately document compliance with emission standards and license conditions and shall maintain such records for a minimum of six (6) years. The records shall be submitted to the Department upon written request. [06-096 CMR 115]

(9) The licensee shall comply with all terms and conditions of the air emission license. The filing of an appeal by the licensee, the notification of planned changes or anticipated noncompliance by the licensee, or the filing of an application by the licensee for a renewal of a license or amendment shall not stay any condition of the license. [06-096 CMR 115]

(10) The licensee may not use as a defense in an enforcement action that the disruption, cessation, or reduction of licensed operations would have been necessary in order to maintain compliance with the conditions of the air emission license. [06-096 CMR 115]

(11) In accordance with the Department's air emission compliance test protocol and 40 CFR Part 60 or other method approved or required by the Department, the licensee shall:

A. perform stack testing to demonstrate compliance with the applicable emission standards under circumstances representative of the facility's normal process and operating conditions:
   1. within sixty (60) calendar days of receipt of a notification to test from the Department or EPA, if visible emissions, equipment operating parameters, staff inspection, air monitoring or other cause indicate to the Department that equipment may be operating out of compliance with emission standards or license conditions; or
   2. pursuant to any other requirement of this license to perform stack testing.

B. install or make provisions to install test ports that meet the criteria of 40 CFR Part 60, Appendix A, and test platforms, if necessary, and other accommodations necessary to allow emission testing; and

C. submit a written report to the Department within thirty (30) days from date of test completion.

[06-096 CMR 115]

(12) If the results of a stack test performed under circumstances representative of the facility's normal process and operating conditions indicate emissions in excess of the applicable standards, then:

A. within thirty (30) days following receipt of such test results, the licensee shall re-test the non-complying emission source under circumstances representative of the facility's normal process and operating conditions and in accordance with the Department's air emission compliance test protocol and 40 CFR Part 60 or other method approved or required by the Department; and

B. the days of violation shall be presumed to include the date of stack test and each and every day of operation thereafter until compliance is demonstrated

under normal and representative process and operating conditions, except to the extent that the facility can prove to the satisfaction of the Department that there were intervening days during which no violation occurred or that the violation was not continuing in nature; and

C. the licensee may, upon the approval of the Department following the successful demonstration of compliance at alternative load conditions, operate under such alternative load conditions on an interim basis prior to a demonstration of compliance under normal and representative process and operating conditions.

[06-096 CMR 115]

(13) Notwithstanding any other provisions in the State Implementation Plan approved by the EPA or Section 114(a) of the CAA, any credible evidence may be used for the purpose of establishing whether a person has violated or is in violation of any statute, regulation, or Part 70 license requirement. [06-096 CMR 115]

(14) The licensee shall maintain records of malfunctions, failures, downtime, and any other similar change in operation of air pollution control systems or the emissions unit itself that would affect emissions and that is not consistent with the terms and conditions of the air emission license. The licensee shall notify the Department within two (2) days or the next state working day, whichever is later, of such occasions where such changes result in an increase of emissions. The licensee shall report all excess emissions in the units of the applicable emission limitation. [06-096 CMR 115]

(15) Upon written request from the Department, the licensee shall establish and maintain such records, make such reports, install, use and maintain such monitoring equipment, sample such emissions (in accordance with such methods, at such locations, at such intervals, and in such a manner as the Department shall prescribe), and provide other information as the Department may reasonably require to determine the licensee's compliance status. [06-096 CMR 115]

SPECIFIC CONDITIONS

(16) **Solid Waste and Flare**

A. BLF shall keep readily accessible, on-site records of the following:

1. The design capacity report which demonstrated that the landfill has a design capacity less than 2.5 million megagrams and 2.5 million cubic meters.
2. The current amount of solid waste in-place.

Records may be maintained off-site if they are retrievable within 4 hours. Either paper copy or electronic formats are acceptable.
[06-096 CFR 115, BPT]

B. BLF shall operate and maintain a landfill gas collection and control system (flare) except for periods of maintenance or malfunction of the system. [06-096 CFR 115, BPT]

C. Emissions shall not exceed the following [06-096 CMR 115, BPT]:

Unit	PM (lb/hr)	PM_{10} (lb/hr)	SO_2 (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Landfill and flare emissions	0.20	0.20	3.92	0.82	4.44	0.46

D. Opacity from the flare and from fugitive emissions from the landfill shall not exceed 10% on a 6-minute block average basis. [06-096 CFR 115, BPT]

E. BLF shall test the landfill gas at the flare for TRS once per calendar year with no less than four months between tests. [06-096 CFR 115, BPT]

F. Bath Landfill shall sample the landfill gas at the flare inlet for TRS utilizing EPA Method 18 or another method approved by the Department.

(17) **Facility Wide Emission Limits**

BLF shall not exceed the following emission limits on a 12 month rolling total basis [06-096 CMR 115 BPT]:

Pollutant	Tons/year
PM	0.9
PM10	0.9
SO2	17.2
NOx	3.6
CO	19.4
VOC	2.0
Total HAP	1.0

(18) **Fugitive Emission**

Visible emissions from a fugitive emission source (including stockpiles and roadways) shall not exceed an opacity of 20%, except for no more than five (5) minutes in any 1-hour period. Compliance shall be determined by an aggregate of the individual fifteen (15)-second opacity observations which exceed 20% in any one (1) hour. [06-096 CMR 101]

(19) BLF shall notify the Department within 48 hours and submit a report to the Department on a quarterly basis if a malfunction or breakdown in any component causes a violation of any emission standard (38 M.R.S.A. §605).

DONE AND DATED IN AUGUSTA, MAINE THIS 18 DAY OF June , 2013.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Marc Allen Robert Cone for
PATRICIA W. AHO, COMMISSIONER

The term of this license shall be ten (10) years from the signature date above.

[Note: If a complete renewal application, as determined by the Department, is submitted prior to expiration of this license, then pursuant to Title 5 MRSA §10002, all terms and conditions of the license shall remain in effect until the Department takes final action on the renewal of the license.]

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: July 26, 2012
Date of application acceptance: August 3, 2012

Date filed with the Board of Environmental Protection:

This Order prepared by Lisa P. Higgins, Bureau of Air Quality.

Filed
JUN 19 2013
State of Maine
Board of Environmental Protection